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10/675,446	09/30/2003	Kent A. Burr	06005/38033A	5635

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EXAMINER	
HOANG, ANN THI	
ART UNIT	PAPER NUMBER
2836	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/675,446	BURR ET AL.	
	Examiner	Art Unit	
	ANN T. HOANG,	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,11,12,14-24 and 26-43* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16-24,26-37 and 43* is/are allowed.

6)☒ Claim(s) *1,2,39 and 40* is/are rejected.

7)☒ Claim(s) *3-9,11,12,14,15,38,41 and 42* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/2/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 26 is objected to because it is dependent upon a cancelled claim. Appropriate correction is required.

2. Claim 41 is objected to for the following minor informalities: It appears that in line 7 of the claim, the word "couple" should be changed to --coupled--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 2, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eryurek et al. (US 6594603) in view of Christensen et al. (US 6912671) and Takagi et al. (US 6,385,166).

Regarding claim 1, Eryurek et al. discloses a communication bus suitable for use in a hazardous area of a process plant (Col. 6 lines 13-16 & Fig. 4 element 28) to transmit electrical signals from one process device to a second and different process device disposed within the process plant, the communication bus comprising: a first end to connect to one process device (Fig. 1 pair 8 on the left connected to device 4 on the left) a second end to connect to the second and different process device (Fig. 1 pair 8 on the right connected to device 4 on the right) a first and second transmission path between the first end and the second end that communicates electrical signals in a first

direction and the opposite direction (communication transmitted/received along the bus pair 8 in Fig. 1 and elements 64 in Fig. 4 that are connected to the I/O 70 and the bus).

Eryurek et al. does not specifically disclose a safety device coupled to each of the first and second transmission paths, wherein the safety device includes a first control unit adapted to detect a fault condition associated with the communication bus and wherein the safety device further includes a first switch unit adapted to interrupt the transmission of electrical signals along each of the first and second transmission paths in response to the detected fault condition on the communication bus.

Christensen et al. discloses a wiring fault detection (Fig. 1) with a safety device coupled to each of the first and second transmission paths (20 18 & 28), wherein the safety device includes a control unit (18) adapted to detect a fault condition associated with the communication bus (Col. 3 lines 60-64) and wherein the safety device further includes a switch unit (Figs. 2 & 3 elements 128 , 150 &Col. 10 lines 8-13) having a closed position allowing a flow of electrical signals along the first and second transmission paths and an open position preventing the flow of electrical signals along the first and second transmission paths, and wherein the control unit causes the switch unit to move to the open position to interrupt the flow of electrical signals along each of the first and second transmission paths (Claim 19).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Eryurek et al. device with the Christensen et al. system in order to allow a complete method for detection, diagnosis and reporting faults. The examiner notes that both devices are in the same problem solving area of Fieldbus communication for industrial processes.

Furthermore, Takagi et al. discloses a control unit (34) to detect a fault condition associated with a communication bus (22), and a switch unit (50, 56) connected to first and second transmission paths (40, 41) to interrupt the flow of electrical signals along each of the first and second transmission paths (40, 41) in response to detecting a fault condition in the communication bus (22) at the control unit (34). See abstract and Fig. 2. It would have been obvious to one of ordinary skill in the art at the time of the invention to interrupt the flow of electrical signals in the transmission paths in response

to detecting a fault condition, as disclosed by Takagi et al., in the communication bus of Eryurek et al. in view of Christensen et al. in order to avoid faulty communication and damage to the system resulting from transmission on a faulty communication bus.

Regarding claim 2, Eryurek et al. in view of Christensen et al. and Takagi et al. discloses the communication bus of claim 1.

Eryurek et al. further discloses wherein the-detected fault condition associated with the communication bus includes at least one of an open circuit, an electrical discontinuity, a cut in the communication bus, a severed communication bus, and a disconnected end of the communication bus (Col. 9 line 12-25).

Regarding claims 39 and 40, Eryurek et al. in view of Christensen et al. and Takagi et al. discloses the communication bus of above wherein the control and the switch (example a relay) of Christensen et al. (Co1.10 lines 8-13) will be located in the module or housing of Eryurek et al. (Fig. 1 element 4).

Allowable Subject Matter

5. Claims 3-9, 11, 12, 14, 15, 38, 41 and 42 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claims 3-9, 11, 12, 14, 15, 41 and 42, the prior art of record fails to teach a third transmission path between the first and second ends coupled to the safety device, wherein the first control unit is configured to detect the fault condition on the third transmission path and to cause the first switch unit to move to the open position to interrupt the flow of electrical signals between the first and second ends along each of the first and second transmission paths in response to detecting the fault condition on the third transmission path at the first control unit, in combination with the other limitations in the claims.

Regarding claim 38, the prior art of record fails to teach a third transmission path and a fourth transmission path connected in a loop within the communication bus, wherein the safety device is coupled to each of the third and fourth transmission paths and wherein the control unit includes a signal source to send a generated signal through the third transmission path and receives a received signal on the fourth transmission path and detects a fault condition based on the received signal, in combination with the other limitations in the claim.

6. Claims 16-24, 26-37 and 43 are allowed. The following is an examiner's statement of reasons for allowance:

Regarding claims 16-24, 26-30 and 43, the prior art of record fails to teach a third transmission path disposed between and communicatively connecting the first end and the second end, a first control unit coupled to the third transmission path to detect a fault condition on the third transmission path associated with the communication bus, wherein the first control unit causes the first switch unit to move to the open position to interrupt the flow of electrical signals along the first and second transmission paths between the first end and the second end in response to detecting the fault condition associated with the communication bus on the third transmission path at the first control unit, in combination with the other limitations in the claims.

Regarding claims 31-37, the prior art of record fails to teach interrupting the flow of electrical signals along the first and second transmission paths at a point between the first and the second end of the communication bus in response to detecting a fault condition associated with the communication bus on the third transmission path, in combination with the other limitations in the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

7. Applicant's arguments filed 4/6/09 have been fully considered but they are not persuasive.

8. Regarding Applicant's argument, see bottom paragraph on p. 18 of remarks, that Takagi et al. does not disclose interrupting the electrical signals on a bus in a manner that is suitable for use in a hazardous area and that, consequently, the reference would not be combined with Eryurek et al. and Christensen et al., Examiner asserts that Eryurek et al. was relied upon for a communication bus suitable for an hazardous area and that the combination of the references would be in this environment. Takagi et al. was relied upon for the well-known concept of interrupting the flow of electrical signals in transmission paths in response to detecting a fault condition associated with the transmission path, which is applicable to both hazardous and non-hazardous communication applications.

9. Regarding Applicant's argument, see bottom of p. 19 and top of p. 20 of remarks, that, in the Takagi et al. reference, electrical signals continue to flow on the communication bus 22 on the one of the communication bus groups that is not currently being evaluated by the control circuit, and diagnosis and isolation of the problem with the communication bus 22 is performed while maintaining communications on a portion of the bus 22, Examiner asserts that Takagi et al. was merely relied upon for the well-known concept of interrupting the flow of electrical signals in a particular transmission path in response to detecting a fault condition associated with that transmission path, not for the feature of maintaining communications on a portion of the bus that is not currently being evaluated by the control circuit.

10. Regarding Applicant's argument, see p. 20 of remarks, regarding claims 3, 16, 31, 41 and 43, this argument has been considered and these claims as well as claims dependent thereon are indicated to be allowable subject matter. See above.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANN T. HOANG, whose telephone number is (571) 272-2724. The examiner can normally be reached on Monday-Thursday and every other Friday, 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rexford N. Barnie can be reached at (571) 272-7492. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ATH/
7/17/09

/Stephen W Jackson/
Primary Examiner, Art Unit 2836